Deafness Fact Sheet

CIRM funds many projects seeking to better understand deafness and to translate those discoveries into new therapies.

Description

According to the National Institute on Deafness and Other Communication Disorders (NIDCD) approximately 36 million American adults have some form of hearing loss.

One of the most common causes of deafness occurs when the cells that detect sound in the inner ear, or cochlea, lose their function. These cells contain highly sensitive hair-like structures that turn sound into electrical signals. The signals are then transmitted to the brain where they are interpreted as sound. If the hairs are damaged by injury, exposure to loud noises, toxins or genetic conditions they are no longer able to transmit sounds to the brain.

Researchers in California and elsewhere have developed ways of coaxing stem cells to form these hair-like structures in the lab. Their discovery raises the hope that hair cells derived from stem cells could ultimately replace the damaged cells and restore hearing.

Other researchers are investigating whether stem cells can protect remaining hair cells or be used to replace the nerve that transmits sound signals from the ear to the brain.

CIRM Grants Targeting Deafness

Researcher name	Institution	Grant Title	Grant Type	Approved funds	
Ebenezer Yamoah	University of California, Davis	Hair Cells and Spiral Ganglion Neuron Differentiation from Human Embryonic Stem Cells	SEED Grant	$458,071	
Stefan Heller	Stanford University	Generation of inner ear sensory cells from human ES cells toward a cure for deafness	Comprehensive Grant	$2,330,371	
Alan Cheng	Stanford University	Enhancing hair cell regeneration in mouse and human inner ear	New Faculty Physician Scientist	$3,091,595	
					Total: $5,880,037.00

CIRM Deafness Videos

Spotlight on Deafness: Welcoming Remarks

Spotlight on Deafness: Seminar by Karen Doyle, M.D.

Spotlight on Deafness: Seminar by Ebenezer Yamoah, Ph.D.

Spotlight on Deafness: Seminar by Diana Kaljian

News and Information

- CIRMResearch Blog entries on deafness research
- Stem Cells Explored As Hearing Loss Treatment (Stanford University)
- UC Davis researchers coax brain cells to mimic inner ear sensory cells (UC Davis)

Resources

- NIH Hearing Loss Information
- Find a clinical trial near you: NIH Clinical Trials database
- Deafness Research Foundation
- National Association of the Deaf
- Hearing Loss Association of America

Find Out More:
Stem Cell FAQ | Stem Cell Videos | What We Fund
